

[54] **TOEBOARD CLAMP FOR STEEL SCAFFOLDING**

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[57] **ABSTRACT**

A clamp comprises a U-shaped rod with a semicircular bight portion that embraces a rear side of a post. Its legs project forwardly from the bight portion, to overlie the top edge of an edgewise upright board, thence downwardly to confine the board against the post. The bight portion can be welded to a length of tubing that encircles the post and through which a set screw extends. Or a second member having a semicircular post embracing portion can be rigidly connected to said bight portion by an elongated element that holds the semicircular portions coaxial, spaced vertically and opening forwardly.

6 Claims, 4 Drawing Figures

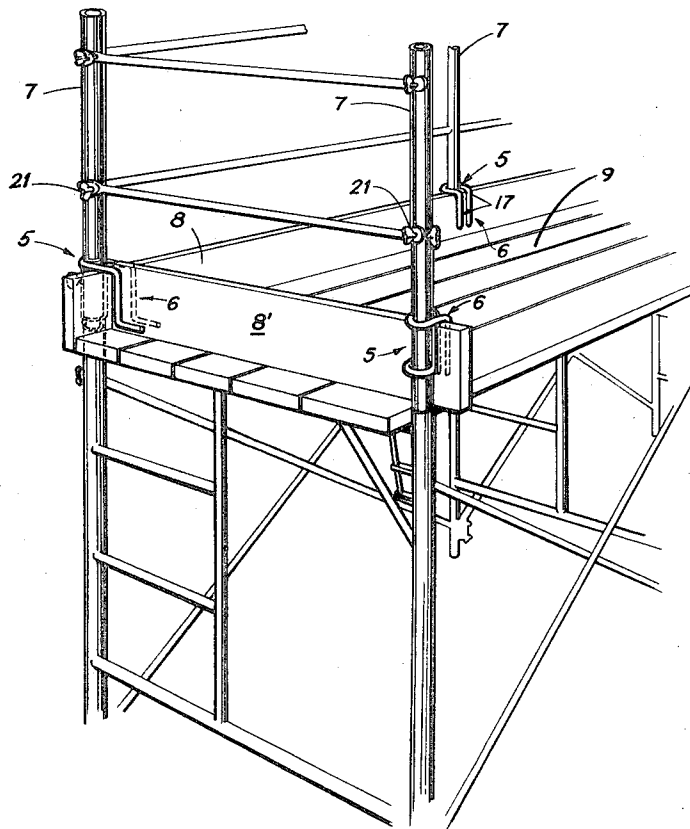
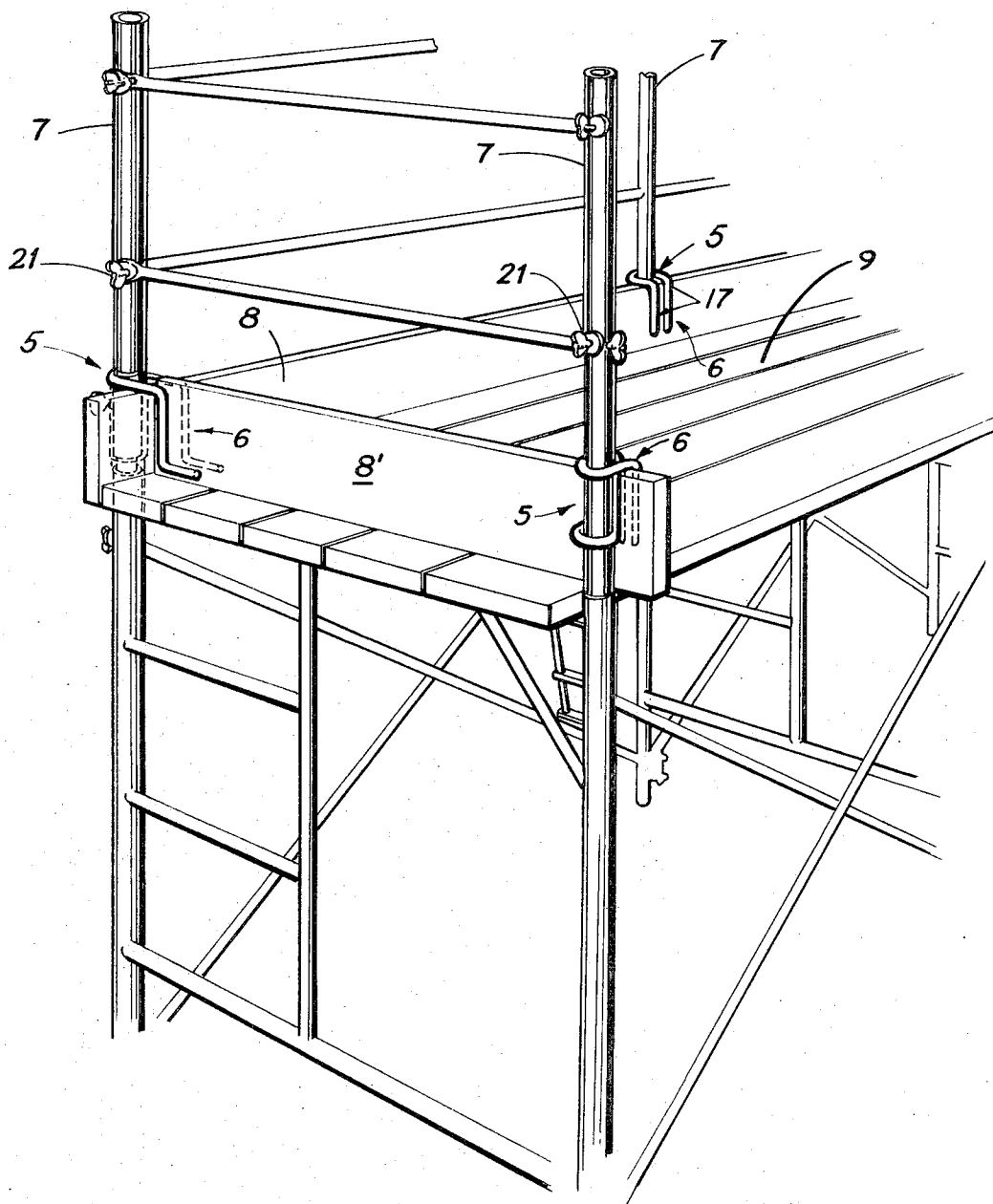
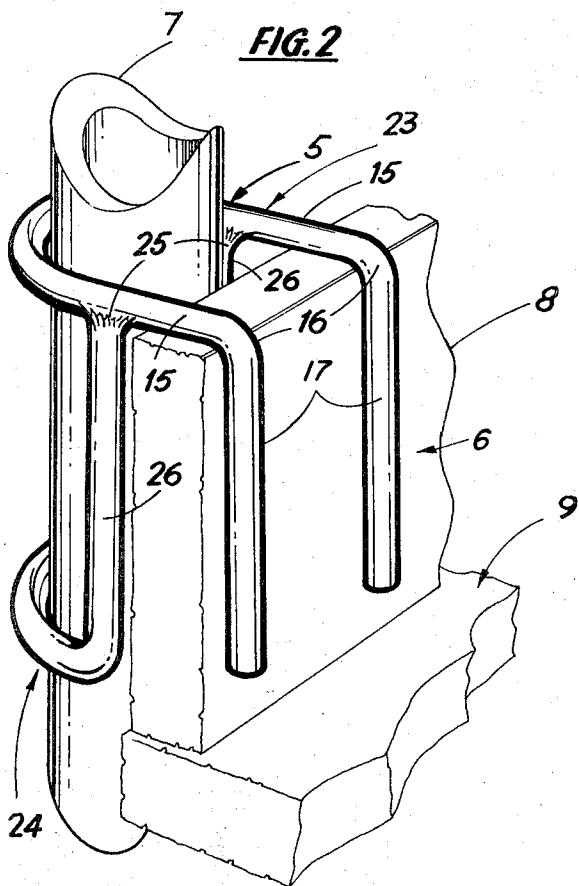
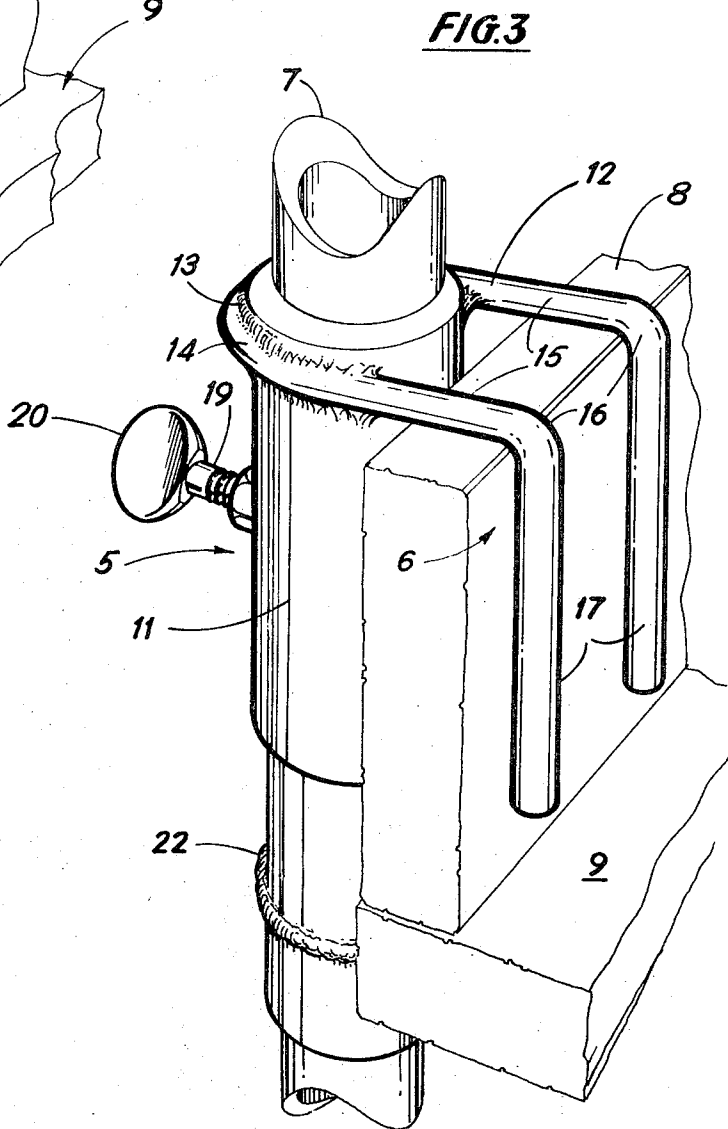


FIG. 1





TOEBOARD CLAMP FOR STEEL SCAFFOLDING

This invention relates to a clamp that is especially well adapted for use with modular steel scaffolding and similar structures and the invention is more particularly concerned with a quickly releasable clamp for securing so-called toeboards to the guard rail posts that rise from the overhead work platforms of scaffolding.

The type of scaffolding most commonly used today on sizeable building and repair projects consists of readily interconnectable modules or frames fabricated from steel tubing. Such sectional steel scaffolding can be quickly erected into a framework upon which planks or plywood can be laid to provide an elevated work platform.

Government safety regulations require that guard rails and toeboards be installed on all open sides and ends of platforms more than 6 feet above the ground or floor. The guard rails are clamped to posts that are secured to the top of the uprights of the topmost frames, and hence rise above the work platform. The posts are spaced along the outer edges and ends of the platform, and the guard rails — which are clamped to the posts — are at a level sufficiently above the platform to protect the workmen against accidentally slipping off the platform.

For the protection of persons and property beneath the work platform, it is important to prevent tools and materials from being kicked or pushed over the edge of it. To that end, the safety regulations require that there be barriers along the outer edges and ends of the platform to prevent any article sliding along the platform from going over its edge. These barriers are most conveniently provided by edgewise upright boards called "toeboards".

In the past, toeboards have been secured in place by means of rather complicated and expensive clamps installed upon the upright posts or by such makeshift expedients as wires wrapped around the posts and the toeboards.

By contrast, it is the general object of this invention to provide a clamp by which a toeboard or the like can be confined against a guard rail post, to be thereby held in an edgewise upright position, which clamp can be manufactured very inexpensively and can be applied and removed in a matter of seconds.

It is another and more specific object of this invention, achieved in one embodiment thereof, to provide a very simple and inexpensive clamp which is permanently assembled with or mounted on a guard rail post and which can be quickly locked to the post to guard against displacement from an operative position holding a toeboard in place.

It is also an object of this invention, achieved in another embodiment thereof, to provide a very simple and inexpensive toeboard clamp for modular steel scaffolding and the like, which clamp can be very quickly assembled to or removed from a post or other upright member with which the clamp cooperates by simple bodily movement of the clamp vertically and laterally relative to the upright member.

With these observations and objectives in mind, the manner in which the invention achieves its purpose will be appreciated from the following description and the accompanying drawings which exemplify the invention, it being understood that changes may be made in the specific apparatus disclosed herein without departing

from the essentials of the invention set forth in the appended claims.

The accompanying drawings illustrate three complete examples of embodiments of the invention constructed according to the best modes so far devised for the practical application of the principles thereof, and in which:

FIG. 1 is a perspective view of a section of scaffolding, illustrating the manner in which the toeboard clamps of this invention are employed to hold toeboards in place;

FIG. 2 is a perspective view of that form of clamp which can be secured to or removed from a post by its mere bodily motion relative to the post, and which can be used to quickly and reliably secure a toeboard or the like to the post;

FIG. 3 is a perspective view of that embodiment of the invention wherein the toeboard clamps are permanently assembled with the guard rail posts; and

FIG. 4 is a perspective view illustrating a modification of that form of the invention shown in FIG. 3, but showing the clamp removed from the post.

In general, the clamp of this invention comprises rigid post engaging means 5 and rigid leg defining means 6 anchored to the post engaging means. In its operative position, the clamp cooperates with the post 7 to which it is attached, to hold an elongated horizontally extending member such as a toeboard 8 in edgewise upright position along an edge of a work platform 9 and against the post.

In those embodiments of the invention illustrated in FIGS. 3 and 4, the post engaging means comprises a tube 11 cut from conventional steel tubing of a size to slideably receive or embrace the post 7, and the leg defining means comprises a unitary substantially U-shaped rod 12 that is secured to the tube 11 as by a weldment 13.

The U-shaped rod 12 has a semicircular medial bight portion 14 which closely embraces the tube 11 around the rear side thereof and to which the weldment 13 is made. From its bight portion parallel inner leg portions 15 extend forwardly to project beyond the front side of the tube. The inner leg portions 15 are transverse to the tube axis, and at their outer ends right angle bends 16 connect the inner leg portions with outer leg portions 17 that are parallel to said axis and spaced forwardly of the tube. The bight portion 14 of the rod 12 is welded to the tube 11 near the top end of the latter, and the outer leg portions 17 extend lengthwise of the tube towards its bottom end.

When the clamp is on a post 7 holding a toeboard in place, the inner leg portions 15 extend transversely across the top edge of the toeboard that is to be secured to the post, and the outer leg portions 17 overlie the far side of the board and thereby confine the board against the front face of the post, or more accurately, the tube 11.

Since the toeboard sets upon the edge portion of the platform, gravity holds the clamp in engagement with the toeboard. However, to guard against accidental upward displacement of the clamp the tube 11 may be releasably secured against movement relative to the post by a set screw 19 that has a threaded connection with the tube and projects through the wall thereof at its rear side. The setscrew is preferably provided with a winged head 20 so that it can be tightened or loosened without the use of tools.

In the embodiment of the invention just described, the toeboard clamp is permanently assembled with a guard rail post, being confined thereon by the lowermost rail attaching screw 21 and a collar 22 which may be simply a ring of weldment.

The other embodiment of this invention that is illustrated in FIG. 2 can be installed onto or removed from any post of suitable size, at any time, to confine the toeboard against displacement.

In effect, the clamp of the FIG. 2 embodiment, is a skeletonized version of the clamp illustrated in FIG. 3.

Thus, the FIG. 2 embodiment comprises merely a pair of integral rod-like members 23 and 24, each bent to substantially a U-shape, which members are permanently and rigidly secured together as by means of weldments 25. The U-shaped member 23, which is bent from a longer length of rod stock than the member 24, corresponds very closely to the member 12 that comprises the leg defining means of the FIG. 3 embodiment, except that the member 23 has its semicircular bight portion bent to a radius small enough to directly and closely embrace the post, rather than fitting around a tube which in turn encircles the post. Thus the U-shaped member 23, like its above described counterpart 12, has short inner horizontal leg portions 15 and longer outer vertical downwardly projecting leg portions 17 connected by right angle bends 16.

The medial bight portion of the smaller U-shaped member 24 is bent to a semicircle of the same radius as the bight portion of the other U-shaped member and the bight portions of the two U-shaped members define the curved post-engaging surface portions of the clamp.

The smaller U-shaped member 24 has its legs 26 disposed at right angles to the plane of its bight portion to extend upwardly therefrom parallel to the axis about which the bight portion is curved. The weldments 25 join the tips of its legs to the bight portion of the larger member near the junctions of said bight portion with the inner leg portions 15. The legs 26 of the smaller member thus serve to hold the bight portions of the two members in concentric, axially spaced relation, with both bight portions opening forwardly to engage around the rear side of a post. When the clamp is in use, the legs 26 of the smaller member overlie the rear face of the toeboard engaged by the clamp, and are preferably so disposed with respect to the axis of the bight portions as to be spaced slightly behind the board so that the board can be held against the post.

The clamp shown in FIG. 2 is installed by moving it forwardly into engagement against the post to which it is to be secured, at a level above the toeboard, and then sliding the clamp straight down the post until its inner leg portions 15 contact the top edge of the board and its outer leg portions 17 overlie the front face of the board.

As shown in FIG. 4, a relatively simple modification of either of the above described embodiments of this invention gives them the added advantage of holding in position one end of the toeboard 8' that extends along the end of the platform as shown at the left hand corner of the scaffold illustrated in FIG. 1.

For this purpose, the extremities of the outer leg portions 17 have forwardly directed fingers 27 which straddle the adjacent end portion of the toeboard and hold it in line with the post 7 on which the clamp is mounted. It is of course understood that the straddled end of the toeboard 8' abuts the inner face of the toe-

board 8 and that the opposite end of the short toeboard 8' is held against the adjacent post 7 by one of the clamps.

Although FIG. 4 shows the fingers 27 on the leg portions 17 of the FIG. 3 form of clamp, it is obvious that the FIG. 2 embodiment of the invention could likewise be provided with such fingers.

Those skilled in the art will appreciate that the invention can be embodied in forms other than as herein disclosed for purposes of illustration.

The invention is defined by the following claims:

1. A clamp by which a board such as a scaffold planking toeboard can be releasably confined in edgewise upright position against a post such as a scaffold post, said clamp comprising:

A. a pair of generally U-shaped rod-like members that have semicircular bight portions of substantially equal radius, each of which can closely embrace one side of a post,

1. the legs of one of said U-shaped members having medial right angle bends in the same direction, to define parallel inner leg portions coplanar with its bight portion and outer leg portions parallel to the axis of curvature of its bight portion,

2. the legs of the other U-shaped member being parallel to the axis of curvature of its bight portion and both projecting in the same direction; and

B. means securing the outer ends of the legs of said other U-shaped member to the first mentioned U-shaped member near the junctions of its inner leg portions with its bight portion, with the legs of said other U-shaped member projecting in the opposite direction to said outer leg portions and parallel to them, and with the axes of curvature of said bight portions concentric, so that the bight portions of said members can embrace axially spaced apart zones of a post at one side thereof for confining a board between the other side of the post and said outer leg portions.

2. A clamp by which a board, such as a scaffold planking toeboard, can be releasably confined in an edgewise upright position against a post, said clamp comprising:

A. a first substantially U-shaped rod-like member having

1. a medial substantially semicircular bight portion which can fit around a rear side of a post,

2. parallel inner leg portions which extend forwardly from the bight portion and are long enough to overlie the upper edge of a board that has a rear face engaging the front side of the post, and

3. outer leg portions which project downwardly from said inner leg portions to overlie the front face of the board;

B. a second substantially U-shaped rod-like member having

1. a medial substantially semicircular bight portion of substantially the same radius as the bight portion of the first member, and

2. parallel legs which project upwardly from its bight portion; and

C. means securing the upper ends of the legs of the second member to the first member near the junctions of its said inner leg portions with its bight portion, said securement means disposing the legs of

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the second member parallel to the outer leg portions of the first member and a distance behind them, to overlie the rear face of a board, and disposing the bight portion of the second member concentrically with and beneath the bight portion of the first member. 5

3. A clamp by which a board can be releasably confined in edgewise upright position with a rear face of the board bearing against a front side of a post, said clamp comprising:

- A. a pair of rigid arcuate elements, each curved about an axis to be closely engageable around a rear side of a post; 10
- B. rigid elongated means connecting said elements and holding them in coaxial, axially spaced apart relationship, both opening forwardly; and 15
- C. a pair of elongated, rigid generally parallel board engaging fingers on one of said elements, each of said fingers having
 - 1. a portion that extends forwardly from an end of said element to overlie an upper edge of a board, and 20
 - 2. a portion that projects from the last mentioned portion in a direction generally toward the other element, to overlie a front face of a board. 25

4. A clamp by which an elongated horizontal member can be readily releasably confined against an upright post, said clamp comprising:

- A. rigid post engaging means in the form of upper and lower U-shaped members adapted to embrace an upright post with the bight portions thereof engaging the same side of the post at vertically spaced locations; 30
- B. connection means securing said upper and lower U-shaped members in aligned superimposed relationship; and 35
- C. a pair of retaining members fixed with respect to said upper and lower U-shaped members and by which an elongated horizontal member may be 40

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held against an upright post on which said device is mounted, said retaining members having

- 1. inner leg portions that form extensions of the legs of the upper U-shaped member to extend across the horizontal member which is to be held against the post, and
 - 2. outer leg portions which project downwardly from the extremities of the inner leg portions towards the lower U-shaped member to overlie the side of the horizontal member remote from the side thereof that faces the post.
5. The clamp of claim 4, further characterized by: outwardly projecting parallel fingers on the extremities of said outer leg portions.
6. A retaining device for readily releasably confining an elongated member against an upright post, comprising;
- A. rigid post engaging means having upper and lower portions both of which are engageable with the same side of an upright post at vertically spaced locations thereof; and
 - B. retaining means fixed to said rigid post engaging means and comprising
 - a pair of rods, each bent into a right-angle with a short leg and a long leg, the short legs being joined to the upper portion of said rigid post engaging means and projecting therefrom to extend across an elongated member which is to be confined against a post on which the device is mounted, and the long legs having their free ends substantially in line with the lower portion of the post engaging means and being equispaced from both the upper and lower portions of the post engaging means a distance to confine the elongated member against the upright post on which the device is mounted.

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